REMARKS

The specification has been amended to correct minor clerical errors or to employ more idiomatic English. No new matter has been entered.

FIGS. 1A, 1B and 1C have been amended as required by the Examiner. Corrected formal drawings will be filed upon allowance of the Application.

The claims have been amended to address the several objections and §112 rejections raised by the Examiner, to the extent they are understood*, with the exception of the requested use of plural for the words "wavelength" (claim 1) and "transmitter" (claim 14). Since the Applicants believe that use of the singular in this instance is correct, the terms "a first and second wavelength" and "a first and a second transmitter" have been rather changed to "a first wavelength and a second wavelength" and "a first transmitter and a second transmitter," respectively, for clarity.

Turning to the art rejections, considering first the rejection of claims 1-6 and 9 as obvious from Pan et al. (U.S. Patent No. 6,400,869), Applicants note with appreciation the indication of allowability of claims 7, 8, 10-12, 17 and 19 if rewritten to overcome the rejections. However, Applicants believe that, in view of the art on record and of the inventors' knowledge of the field, it is entitled to the full protection offered by the current independent claims.

In this regard, Applicants submit that the differences between the method of independent claims 1 and what Pan et al. reference discloses are quite significant. Namely:

a) As defined in the preamble to claim 1, the claims of the present invention describe a method of measuring the chromatic dispersion of an optical link. The claims as amended now

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* It is noted the Examiner has never responded to Applicants' Request for Clarification.

specifically refer to chromatic dispersion, as evident from the specification and the accompanying drawings, and as evident to a person skilled in the art of optics.

Unlike the invention claimed in the present application, Pan et al. describes techniques for compensating polarization mode dispersion (PMD), using non-linearly chirped Bragg gratings in a dual pass configuration. Chromatic dispersion and PMD are different phenomena, with a different cause and a different effect on the optical signal, and as a result, the dispersion measuring is very different from PMD compensation.

b) Pan et al. describes means for "compensating" PMD, the claims under consideration define "measuring" chromatic dispersion. A "measuring" method in itself is quite different from a "compensating" method.

c) Pan et al. does not teach generating a two-color signal (i.e. a signal made of two wavelengths) modulated with a digital signal as in the first recitation of independent claim 1 of the present application.

The embodiment of Figure 2A of Pan et al. illustrates the operation of a nonlinearly chirped Bragg grating 101, while the embodiment of Figure 4A shows "a line system for characterizing the performance of the device of Figure 1." These two Figures cannot be properly combined to result in the embodiment defined by claim 1.

Also, the text in col. 6 lines 40-42 and the embodiment shown in Figure 4A of Pan et al. unambiguously describes and respectively shows modulating a laser (**one** wavelength) with a PRBS signal.

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Further, the embodiment of Figure 2A of Pan et al. and the accompanying text clearly indicate that input signal 112 includes "spectral components at different wavelengths along two different polarization axes." The embodiment of claim 1 is not concerned with polarization.

d) Independent claim 1 also defines detuning one of the wavelengths with respect to the other in order to impose a delay of a known (controlled) value between the digital signals carried by these wavelengths.

Pan et al. does not disclose any detuning between two wavelengths. Rather, the text in col. 6, lines 35-55 describes using a free-space variable time delay device 430 that introduces PMD into the beam.

e) Independent claim 1 defines measuring the BER of the two-color signal for a plurality of detuning values to obtain the BER response.

Pan et al. does not describe or illustrate BER measurements for a two-color signal where one signal is delayed with controlled detuning values. Rather, the reference is concerned with measuring the BER of a WDM signal where PMD is added by a device 430 and compensated for by a device 440.

In addition, the Examiner's assertion that a tunable laser enables obtaining different detuning values is incorrect, since a tunable laser generates only one wavelength at a certain time (it can generate other wavelengths but not simultaneously).

Regarding the rejection of claim 2, Applicants note that chromatic dispersion is determined based on the delay of one wavelength from the other. This is not a simple operation, as described in the body of the specification as filed, mostly because the delay also depends on

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the wavelength. If the Examiner is aware of any prior art reference in this field, he is invited to cite it against claim 2.

The rejection of claims 3-6 is not understood. First, these claims should not be grouped since they refer to different steps of the method according to the invention. Namely, claim 3 defines detuning the second wavelength with respect to the first, while claims 4 and 5 refer to how the wavelengths are modulated, and claim 6 is concerned with changing the power ratio between the two wavelengths for a certain detuning value.

In addition, Pan et al. does not disclose at all detuning a second wavelength with respect to a first, how two wavelengths are modulated with the same digital signal, or performing measurements for various power ratios between the two wavelengths at a certain detuning value. Pan et al. is concerned specifically with compensating PMD with a birefringent non-linearly chirped Bragg grating.

Claim 9 depends on claim 2, which in turn depends on claim 1. As such, the above considerations in connection with claims 2 and 1 apply to claim 9. In addition, there is no mention or need in Pan et al. to determine the sign of dispersion, since this reference is concerned with PMD.

Turning to the rejection of claims 13-16 and 18 as obvious from Pan et al. (U.S. Patent No. 6,400,869) in view of Takeda et al. (U.S. Patent Appln. Pub. No. 2002/0003653) the Applicants submit that the differences between the apparatus of claim 13 and the disclosure of Pan et al. and/or Takeda et al. references are quite major. Namely:

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a) Independent claim 13 defines a dispersion measurement apparatus. Pan et al. describes a polarization controller (compensator) and Takeda et al. describes a device for shaping an optical signal.

b) Independent claim 13 defines a transmitter unit for generating a two-color signal and transmitting this signal over a link under test. Neither of the applied references is concerned with such a transmitter unit. Thus, no combination of Pan et al. and Takeda et al. can achieve this.

c) It is to be noted that BER measurement per se (incidentally, BER measurements are always effected in the electrical domain, as the word "bit" indicates) is not the object of the invention in claim 13, nor the object of the Takeda et al. reference. Rather, claim 13 specifies that the BER of the two-color signal is measured by the receiver. Neither of the references describes this. Thus, no combination of Pan et al. and Takeda et al. can achieve this either.

d) Independent claim 13 defines a dispersion calculating unit for determining the chromatic dispersion of the link under test. Neither reference is concerned with dispersion measuring.

Claim 14/13 defines two transmitters, means for combining the two wavelengths and a modulator that modulates the same digital signal over the combined wavelengths. Pan et al. does not disclose a first and a second transmitter, or a means for combining, or a modulator for modulating a digital signal over the combined wavelengths.

Furthermore, the rejection of this claim is not understood. Pan et al. does not need to "control the input signals," as it is concerned with compensating PMD on an existing signal.

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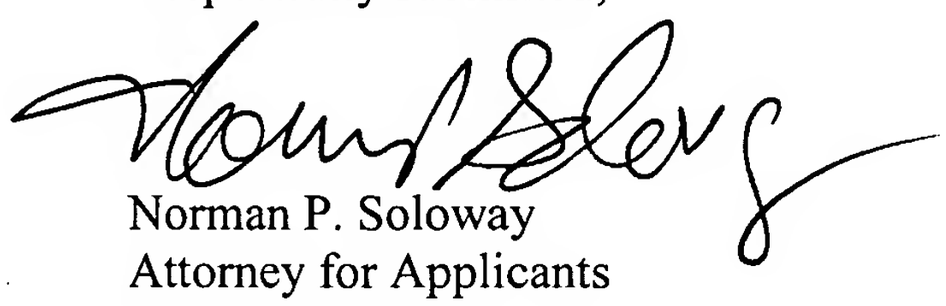
Claims 15 and 16 should not be grouped. Claim 15/13 defines that one of the transmitters of unit 2 (at the transmit end of the LUT) is tunable. In addition to the major differences between the teaching of the reference and the apparatus of claim 13, Pan et al. does not describe two transmitters. Claim 16/13 defines particular aspects of the dispersion calculating unit 13, at the receive end of the LUT. The to Pan et al. reference as applied against claim 1 does not describe a dispersion calculating unit, which determines dispersion based on BER measurements for different detuning values.

Claim 18/16/13 defines particular aspects of the dispersion calculating unit. Pan et al. does not describe at all a dispersion calculating unit. In addition to the major differences between the teaching of the reference and the apparatus of claims 13 and 16/13, Pan et al. does not describe memory means for storing the BER response.

In view of the above, reconsideration and allowance of all claims is respectfully requested.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391.

Respectfully submitted,



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Serial No. 10/036,662
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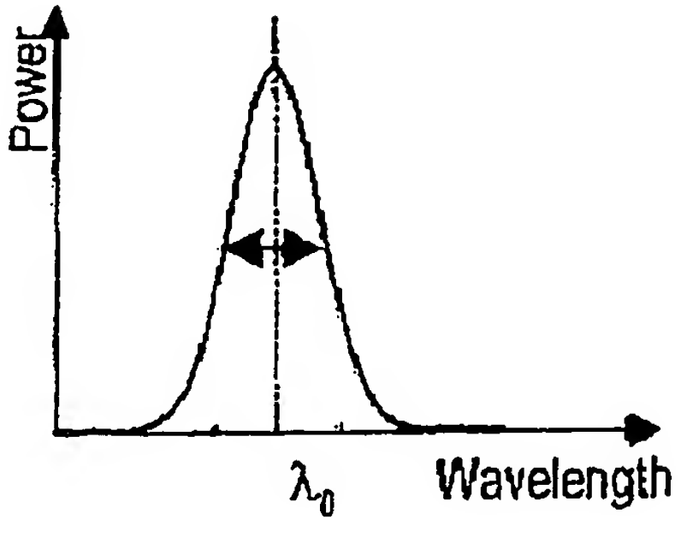
MARKED AMENDED FIGS. 1A, 1B, 1C
Submitted with Amendment A

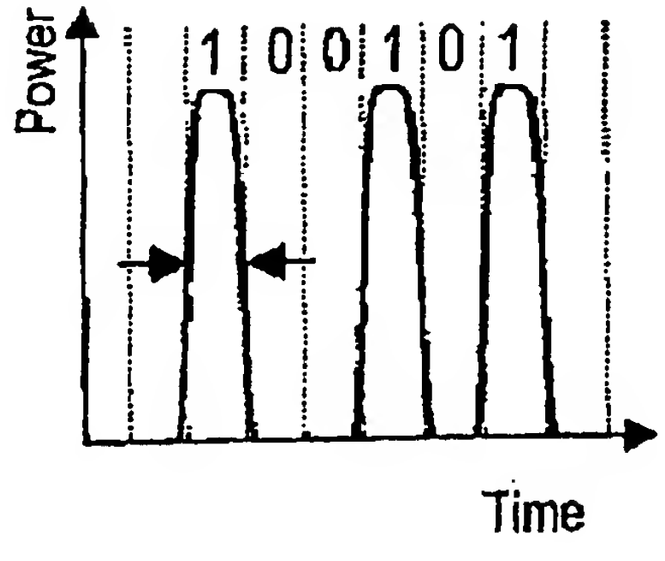
PRIOR ART

FIGURE 1A



PRIOR ART

FIGURE 1B



PRIOR ART

FIGURE 1C

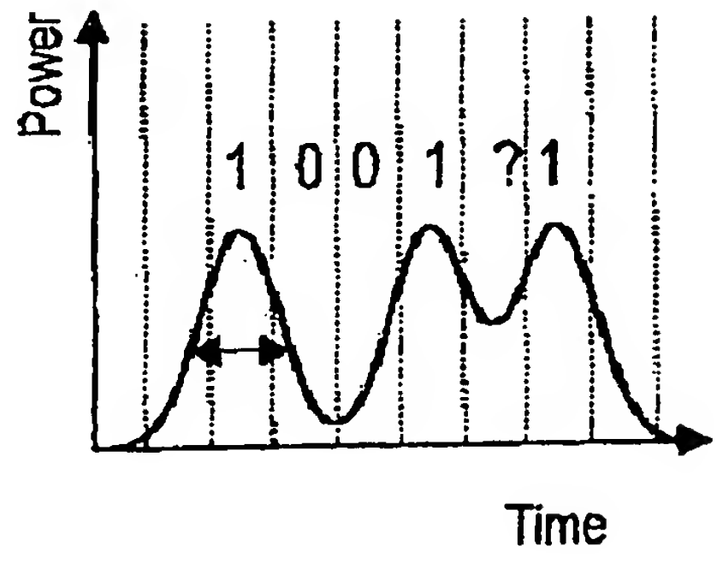


FIGURE 2